Montana Board of Oil and Gas Conservation
Environmental Assessment

Operator: TAQA North USA, Inc.
Well Name/Number: Krowen 23-12H
Location: SW SW Section 23 T37N R57E
County: Sheridan **, MT; Field (or Wildcat)** Wildcat (Flat Lake)

Air Quality

(possible concerns)
Long drilling time: No, 20-30 days drilling time.
Unusually deep drilling (high horsepower rig): Heavy double derrick drilling rig to drill a Bakken formation single lateral horizontal well, 11,939'MD/7740'TVD.
Possible H2S gas production: Slight possibility of H2S.
In/near Class I air quality area: No Class I air quality area nearby.
Air quality permit for flaring/venting (if productive): Yes, DEQ air quality permit required under 75-2-211.

Mitigation:
X Air quality permit (AQB review)
__ Gas plants/pipelines available for sour gas
__ Special equipment/procedures requirements
__ Other:_____
Comments: Existing field infrastructure to handle gas. No concerns.

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Water Quality

(possible concerns)
Salt/oil based mud: Intermediate string hole will be drilled with oil based invert mud system and openhole horizontal production hole will be drilled with fresh water polymer drilling fluids. Surface casing hole will be drilled with a freshwater, and freshwater mud system.
High water table: No high water table anticipated.
Surface drainage leads to live water: No, no live water nearby.
Water well contamination: None, closest water wells in the area are about 3/8 of a mile to the east northeast and 7/8 of a mile to the southeast from this location. Depth of these domestic wells are from 175' to 197'. Surface hole will be drilled with freshwater and freshwater drilling muds. The surface casing setting depth. of 1250' should be below all freshwater zones.
Porous/permeable soils: No, sandy clay soils.
Class I stream drainage: No, Class I stream drainages.

Mitigation:
__ Lined reserve pit
X Adequate surface casing
__ Berms/dykes, re-routed drainage
X Closed mud system
X Off-site disposal of solids/liquids (in approved facility)
X Other: Freshwater drilling fluids will be land applied with surface owner approval.
Comments: 1250' surface casing well below freshwater zones in adjacent water wells. Also, covering Fox Hills aquifer

Soils/Vegetation/Land Use

(possible concerns)
Steam crossings: None anticipated.

High erosion potential: Moderate cut, up to 11.3' and small fill, up to 6.2', required.
Loss of soil productivity: None, location to be restored after drilling well, if nonproductive. If productive unused portion of drillsite will be reclaimed.
Unusually large wellsite: No, large well site 425'X440'
Damage to improvements: Slight, surface use is a cultivated field.
Conflict with existing land use/values: Slight

Mitigation
__ Avoid improvements (topographic tolerance)
__ Exception location requested
X Stockpile topsoil
__ Stream Crossing Permit (other agency review)
X Reclaim unused part of wellsite if productive
__ Special construction methods to enhance reclamation
__ Other _____

Comments: Access will use existing county road. A short road will be constructed into this location. Surface hole (freshwater) cuttings will be mixed buried on site. Oil based invert mud cuttings will be trucked to an approved waste disposal facility. Oil based drilling fluids will be recycled to the next location or returned to the mud company's recycling facility. Freshwater surface fluids and horizontal freshwater polymer fluids and cuttings will be land applied. No concerns.

Health Hazards/Noise

(possible concerns)
Proximity to public facilities/residences: Residence, about 3/8 of a mile to the east from this location. Cemetery, about ½ of a mile to the north from this location.
Possibility of H2S: Yes, slight.
Size of rig/length of drilling time: Heavy double drilling rig 20 to 30 days drilling time.

Mitigation:
X Proper BOP equipment
__ Topographic sound barriers
__ H2S contingency and/or evacuation plan
__ Special equipment/procedures requirements
__ Other:_____

Comments: Adequate surface casing cemented to surface with working BOP stack should mitigate any problems.

Wildlife/recreation

(possible concerns)
Proximity to sensitive wildlife areas (DFWP identified): None identified.
Proximity to recreation sites: None identified.
Creation of new access to wildlife habitat: No
Conflict with game range/refuge management: No
Threatened or endangered Species: Only species identified as threatened or endangered are the Whooping Crane and Piping Plover. Species of concern is the Sprague's Pipit. NH tracker website lists 14 species of concern. All species listed are birds. Well will be drilled in the winter months. These birds are migratory and should not be impacted by the drilling of this well. The surface location is in a cultivated field.

Mitigation:
__ Avoidance (topographic tolerance/exception)
__ Other agency review (DFWP, federal agencies, DSL)
__ Screening/fencing of pits, drillsite
__ Other:_____

Comments: Private cultivated surface lands. No concerns.

Historical/Cultural/Paleontological

(possible concerns)

Proximity to known sites: None identified.

Mitigation

__ avoidance (topographic tolerance, location exception)

__ other agency review (SHPO, DSL, federal agencies)

__ Other:

Comments: Private cultivated surface lands. No concerns.

Social/Economic

(possible concerns)

__ Substantial effect on tax base

__ Create demand for new governmental services

__ Population increase or relocation

Comments: No concerns. Wildcat well within an existing oil field, Flat Lake Field.

Remarks or Special Concerns for this site

Wildcat Bakken formation single lateral horizontal well, 11,939'MD/7740'TVD, within an existing oil field, Flat Lake Field

Summary: Evaluation of Impacts and Cumulative effects

No long term impacts expected. Some short term impacts will occur, but can be mitigated in a short time.

I conclude that the approval of the subject Notice of Intent to Drill (does/**does not**) constitute a major action of state government significantly affecting the quality of the human environment, and (does/**does not**) require the preparation of an environmental impact statement.

Prepared by (BOGC): /s/Steven Sasaki

(title:) Chief Field Inspector

Date: November 26, 2010

Other Persons Contacted:

Montana Bureau of Mines and Geology, Groundwater Information Center website.

(Name and Agency)

Sheridan County water wells

(subject discussed)

November 26, 2010

_____
(date)
US Fish and Wildlife, Region 6 website
(Name and Agency)
ENDANGERED, THREATENED, PROPOSED AND CANDIDATE SPECIES MONTANA COUNTIES, Sheridan County
(subject discussed)

_November 26, 2010_____
(date)

Montana Natural Heritage Program Website (FWP)
(Name and Agency)
Heritage State Rank= S1, S2, S3, T37N R57E
(subject discussed)

_November 26, 2010_____
(date)

If location was inspected before permit approval:
Inspection date: _____
Inspector: _____
Others present during inspection: _____